

Claims 1-6 and 11-14 stand rejected under 35 USC 103 as being unpatentable over Yamazaki et al., U.S. Patent No.

5,824,235, in view of Zhang et al., U.S. Patent No. 5,569,936.

The rejection also cites the article "Crystallization of Amorphous Silicon by NiSi<sub>2</sub> Precipitates" by Schoenfeld et al., Thin Solid Films 261 (1995), pages 236-240. These rejections are respectfully traversed.

Claim 1 defines a charge transfer semiconductor device including a crystalline semiconductor film having rod-like or columnar crystals extending in a predetermined direction comprising a charge storing means and a charge transfer means. The predetermined direction coincides or approximately coincides with a charge transfer direction of the charge transfer means.

Yamazaki, Zhang, and Schoenfeld do not, alone or in combination, disclose or suggest that the predetermined direction coincides or approximately coincides with the charge transfer direction of the charge transfer means. The rejection does not specify how this limitation is shown in the cited references.

Yamazaki does not address the relationship between the crystal growth direction and the charge transfer direction and so does not teach or suggest their alignment.

Zhang teaches using a catalytic material such as nickel which can promote crystallization of silicon. However, Zhang's

silicon film is not crystallized in a direction parallel to a surface of the silicon film. Zhang shows selectively introducing a catalyst (see Zhang, FIGS. 3A - 3E, 4A - 4E) and that in the portions with the catalyst, crystals grow perpendicular to the surface of the silicon film toward a substrate. Thus, Zhang does not teach lateral growth of crystals and so does not teach or suggest that the crystal growth direction is aligned with the charge transfer direction.

Schoenfeld addresses a relationship between temperature and nickel silicide crystallization. In the abstract section of the article, Schoenfeld describes a net of needle-like grown silicon crystallites. However, Schoenfeld does not address charge transfer direction and crystal growth direction, nor does the rejection refer to Schoenfeld for this proposition. Hence, Schoenfeld does not appear to teach or suggest aligning the crystal growth direction and the charge transfer direction.

Accordingly, claim 1 includes limitations which are not disclosed or suggested by the references forming the basis of the rejection and so is in condition for allowance, as well as claims 3-5 and 13 which depend therefrom. Similar arguments apply to claim 2, and so claim 2 is also in condition for allowance, as well as claims 6, 11-12, and 14 which depend therefrom.

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New claims 16-23 include similar limitations to those discussed above with respect to claim 1, and so, for similar reasons are in condition for allowance.

Applicants call attention to the enclosed document listed on the attached form PTO-1449. Kindly accept this Information Disclosure Statement under Rule 97(c)(1). The rule 17(p) certification fee of \$250 is enclosed.

In view of the above amendments and remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully solicited.

If there are any charges, or any credits, please apply them to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 4/29/99

  
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